UFC 1-300-02
23 MARCH 2001

UNIFIED FACILITIES CRITERIA (UFC)

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS) FORMAT STANDARD

U.S. ARMY CORPS OF ENGINEERS (Preparing Activity)

NAVAL FACILITIES ENGINEERING COMMAND

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

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Change No.	Date	Location

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS) FORMAT STANDARD FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, operations and maintenance criteria, and applies to all service commands having military construction responsibilities. UFC will be used for all service projects and work for other customers where appropriate.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, United States Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineering Support Agency (AFCESA) are responsible for administration of the UFC system. Technical content of UFC is the responsibility of the preparing tri-service committee. Recommended changes with supporting rationale should be sent to the respective service proponent office, as follows:

- HQUSACE, ATTN: CECW-E, 441 G Street, NW, Washington, DC 20314-1000, or the Recommended Changes To Engineering Documents page on the TECHINFO site listed below.
- Commander, Atlantic Division, Naval Facilities Engineering Command, 1510 Gilbert Street (ATTN: NAVFAC Criteria Office), Norfolk, Virginia 23511-2699, or crit_innov_15@efdlant.navfac.navy.mil, by commercial telephone (757) 322-4200, or DSN 262-4200, or by facsimile machine to (757) 322-4416.
- Air Force Civil Engineer Support Agency, 139 Barnes Drive, Tyndall Air Force Base, Florida 32403-5319, or larry.spangler@tyndall.af.mil.

UFC are effective upon issuance. UFC are distributed only in electronic media from the following sources:

- USACE TECHINFO Internet site http://www.hnd.usace.army.mil/techinfo/index.htm.
- NAVFAC Criteria Office Internet site http://criteria.navfac.navy.mil/criteria.
- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences on CD-ROM and at Internet site http://www.ccb.org/.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

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CHAPTER 1

INTRODUCTION

1-1 **PURPOSE AND SCOPE**. This document provides guidance for the preparation of Unified Facilities Guide Specifications (UFGS). UFGS are published by the Services under the auspices of the Tri-Service Engineering Senior Executive Panel (ESEP). The ESEP is composed of the Deputy Under Secretary of Defense, Installations; the U.S. Army Corps of Engineers (HQUSACE), Chief, Engineering and Construction; the Naval Facilities Engineering Command (NAVFAC), Chief Engineer; and the Air Force Deputy Civil Engineer (HQ USAF/ILE). UFGS are prepared by Tri-Service committees called discipline working groups. Publication of UFGS is only by electronic media available from the distribution sources indicated in the Foreword of this UFC.

1-2 **APPLICABILITY**. This UFC applies to all Tri-Service elements and contractors preparing UFGS.

1-3 **REFERENCES**. References used in this UFC are as follows.

MIL-STD-3007, 2001 Edition, Standard Practice for Unified Facilities Criteria.

CSI MasterFormat, (1995 Edition, Construction Specifications Institute), Master List of Numbers and Titles for the Construction Industry.

CSI SectionFormat (1997 Edition, Construction Specifications Institute), A Recommended Format for Construction Specifications Sections.

CSI Manual of Practice (1996 Edition, Construction Specifications Institute).

1-4 **CONTENT AND FORMAT**. UFGS are for the purpose of translating design criteria into construction requirements that have been coordinated with industry, thereby providing requirements which can be incorporated into construction contracts. Each Tri-Service discipline working group (DWG) is responsible for the technical content, format, and overall quality of their UFGS. This UFC establishes the general content and appearance of UFGS publications. The UFGS format is based on the Construction Specifications Institute SectionFormat and is designed to be used with SpecsIntact software. An example layout of UFGS is included in this UFC, and SpecsIntact software includes an electronic template in the proper format.

1-4.1 **Content Guidance**. Since UFGS are used as a basis for construction contract documents, they must be written in a manner that will facilitate use on the job and preclude misinterpretations leading to legal complications. UFGS should reference non-Government standards to the greatest extent where appropriate and should avoid repeating the requirements of commercially available criteria and standards. UFGS are broad in their applicability and non-geographical in technical content. In general, requirements or restrictions for specific localities should not be included in UFGS; however, requirements or limitations for various climatic or operating conditions are permitted.

CHAPTER 2

REQUIREMENTS

2-1 **ORGANIZATION.** Compliance with the guidance provided in this document will make the task of preparing UFGS easier and will result in UFGS which will be compatible with others in the system. A template is included in SpecsIntact which shall be used as a starting point for preparing UFGS or project specification sections for work not covered by guide specifications

2-1.1 **Construction Specifications Institute (CSI).** CSI recommends the use of three parts in each section, and further recommends that a consistent sequence of subject matter be maintained within each part. These recommendations are included in Appendix A and should be followed to the extent practical in UFGS

2-1.2 **Table of Contents**. A table of contents for a section can be generated automatically as part of the SpecsIntact print process

2-1.3 **Appendixes**. Appendixes to a UFGS section can be used, but they are rarely necessary. When used. the appendix should be separate from the text file and added manually in the final electronic file for the project.

2-1.4 **Figures**. Figures are permitted at the end of a UFGS section; they must be separate from the text file and added manually in the final electronic file for the project.

2-2 **FORMAT**.

2-2.1 **General**. Use of SpecsIntact software is mandatory and use of the electronic template component of SpecsIntact in the development of UFGS will assure that page layout, banners, notes, text paragraphs, tables, fonts, page numbers, headers, and other basic elements of a UFGS are consistent within each UFGS document and within the UFGS system.

2-2.2 **Numbering**. Each UFGS must carry an identifying document number in accordance with the CSI MasterFormat. Paragraph and subparagraphs within the UFGS must be numbered in accordance with the SpecsIntact number-period system. Each paragraph and subparagraph must be numbered.

2-2.3 **Paragraph Titles**. Each numbered paragraph must have a paragraph title; uppercase for main paragraphs and upper and lower case for subparagraphs.

2-3 **WRITING STYLE**. Write in a direct, active voice with simple, concise sentences as much as possible. Avoid ambiguous, indefinite terms such as "too short" or "relatively simple." UFGS should supplement the dimensions, sizes, and relationships shown on the drawings with requirements for materials, installation, and other non-graphic

requirements. Define what applies in lieu of using "applicable" or other indefinite wording. Do not use "and/or"; do not use the virgule (/) to substitute for "and" or "or." Do not use "etc."; use "e.g.," "for instance," or "such as."

2-3.1 **Mood, Tense, and Voice**. In general, use the imperative mood (e.g., install equipment) except when clarity requires the use of the indicative mood (e.g., equipment shall be). The term “shall” is used to indicate mandatory contract requirements on the part of the contractor. The term “will” is used to indicate contract requirements to be performed by the Government. Use "can" and "may" to permit choice and identify guidance. Use "should" to indicate desirable procedures that are advisory in nature. Do not use the term "furnish" unless only delivery of material to the site is required. Use "provide" to mean "furnish and install."

2-3.2 **Abbreviations and Acronyms**. Use of abbreviations and acronyms must follow the practices within the discipline involved and should be defined at their first use in a section. At the first use, write out the term completely and follow with the abbreviation or acronym in parentheses.

2-3.3 **International System of Units (SI)(Metric)**. Use hard metric for measurements when products are available in metric units. Use soft metric for measurements when the products are not available in metric units. Soft metric is designated in metric projects with the inch-pound (IP) governing unit in parenthesis following the metric approximate unit (e.g., 50mm (2inch)).

2-3.4 **References in Text**. All references used in the UFGS shall be listed in the paragraph entitled "REFERENCES". Standards producing organizations cited in the paragraph shall be identified with the acronym used by the organization or given an appropriate acronym if none has been assigned by the organization. In the UFGS, the reference identifier for the reference shall appear and be tagged in the reference paragraph and at all occurrences in the text using the SpecsIntact software.

2-3.5 **Cross References.** Avoid cross-reference to other sections and do not cross reference paragraphs in other sections. When a cross reference is necessary, the form shall be: Section 01234, "MISCELLANEOUS". When necessary to reference paragraphs, only main paragraphs should be referenced (e.g., paragraph EQUIPMENT).

2-4 **FORMS.** Forms may be developed and included for specific data collection tasks required by a UFGS.

2-5 **CHANGES**. A change is an updating of various requirements in a UFGS and republication of the UFGS with a new date. Changes are of two types as follows:

a. Changes as a result of reviewing and rewriting a UFGS during which the Technical Representative considers all aspects of the section. As it is impractical to identify these changes with change tags, the statement "Revised throughout - changes not indicated by CHG tags" shall be included in the banner.

b. Changes during which the Technical Representative considers only one issue or a limited number of issues which may or may not be technical in nature. These changes shall be identified with change tags using the SpecsIntact software, and the statement "Latest change indicated by CHG tags" shall be included in the banner.

2-6 **ELECTRONIC FORMAT AND MEDIA.** SpecsIntact files are SGML format with an extension SEC. WordSpec files are MS Word® files with an extension DOC. Files for viewing UFGS in media or applications other than SpecsIntact are Adobe® PDF. UFGS are distributed on CCB and the Internet in both PDF and SEC formats. Additionally, the entire UFGS Master is distributed on the Internet in zipped SEC format.

2-7 **UFGS APPROVAL**. UFGS shall be coordinated for approval in accordance with MIL-STD-3007. Each UFGS shall be reviewed by discipline representatives assigned by each of the Tri Services. When appropriate, extend the opportunity for review to major commands, facility users, and private industry. Preparing activities shall coordinate new and changed UFGS within their agency and with their counterparts in the other agencies. Upon completion, new and revised UFGS shall be submitted to the Technical Proponent for final review and approval. Changes to UFGS are subject to coordination and approval of the other agencies whenever the change affects the technical content of the UFGS. However, the Preparing Activity is always obligated to consider and resolve requests from other agencies for changes to UFGS.

APPENDIX A

UFGS ORGANIZATION GUIDANCE

The following guidance is based on the paragraph titles and sequence recommended in the CSI Manual of Practice. This format has been adopted by the agencies supporting the SpecsIntact software. This arrangement will be used to the extent applicable in the preparation of UFGS by eliminating paragraphs, which do not apply, and adding additional paragraphs as necessary. **It is important that UFGS authors understand that the paragraphs listed below are not mandatory. Use only those paragraphs which are applicable to the subject being specified, and add any applicable requirements not listed.** It is important that the sequence of information provided herein be followed even when the paragraph titles are adjusted to fit the subject matter being specified. The terms "article," "paragraph," and "subparagraph" have meanings within CSI; however, when referring to these parts in UFGS, the terms "paragraph" and “subparagraph” are used since they are common to other writing.

Paragraph and subparagraph numbering to the third level shall be completely numeric. Below the third level, use an alternating alpha-numeric item designation. For example:

1.1 PARAGRAPH (1st level)

1.1.1 Paragraph (2nd level)

1.1.1.1 Subparagraph (3rd level – levels beyond this level should be avoided)

a. Item

(1) Item

(a) Item

1. Item

Progression beyond this level should not be used.

PART 1 GENERAL

1.1 REFERENCES

This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

1.2 UNIT PRICES

Measurement and payment requirements will be specified for work subject to extreme variation in estimated quantity when unit price bidding is required. This paragraph is not used for guide specifications covering building components or for other construction features when quantities can be reasonably calculated from information included in the contract.

1.3 SYSTEM DESCRIPTION

This paragraph will be limited to statements describing performance or design requirements and tolerances of a complete system. Descriptions should be limited to composite and operational properties to the extent necessary to link multiple components of a system together, and to interface with other systems.

1.3.1 Design Requirements

Design requirements may include criteria for structural, thermal, acoustical, or other properties. Tolerances should be stated here only as they apply to the performance of the complete system. Tolerances of fabrication and installation should be included in their respective paragraphs under Part 1.

1.3.2 Performance Requirements

Performance requirements may include criteria for structural, thermal, acoustical, or other properties. Tolerances should be stated here only as they apply to the performance of the complete system. Tolerances of fabrication and installation should be included in their respective paragraphs under Part 2.

1.4 SUBMITTALS

Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required. Where a "G" submittal tag follows a submittal item, it indicates Government approval for that item. Add "G" in submittal tags following any added or existing items deemed sufficiently critical, complex, or aesthetically significant to merit approval by the Government. Submittal items not designated with a "G" will be approved by the QC organization. Each submittal item listed under each submittal classification shall also appear in one principle subpart of the specification exactly as listed in the submittal paragraph and it shall be tagged using the SpecsIntact software. Care should be taken to assure the submittal item tagged in the text is in fact the requirements that are to be verified with the submittal.

The following is a listing of the eleven approved submittal items that should be used as appropriate:

SD-01 Preconstruction Submittals

SD-02 Shop Drawings
SD-03 Product Data
SD-04 Samples
SD-05 Design Data
SD-06 Test Reports
SD-07 Certificates
SD-08 Manufacturer's Instructions
SD-09 Manufacturer's Field Reports
SD-10 Operation and Maintenance Data
SD-11 Closeout Submittals

1.5 QUALITY ASSURANCE

1.5 Qualifications

This paragraph includes statements of qualifications for contractor designers, manufacturers, fabricators, welders, installers, and applicators of products and completed work.

1.5.2 Regulatory Requirements

This paragraph includes obligations for compliance with specific code requirements for contractor-designed items such as wood trusses, labeling such as Underwriters Laboratory, Inc., and requirements of public authorities such as state highway departments.

1.5.5 Pre-Installation Conference

This paragraph can be used to specify conferences to coordinate the work or to sequence related work for sensitive and complex items.

1.6 DELIVERY, STORAGE, AND HANDLING

This paragraph includes the necessary requirements on packing and shipping, acceptance at site, and storage and protection.

1.7 PROJECT/SITE CONDITIONS

1.7.1 Environmental Requirements

This paragraph establishes any physical or environmental limitations or criteria. Such conditions might include temperature, weather, humidity, ventilation, and illumination required for proper installation or application.

1.7.2 Existing Conditions

This paragraph includes statements or references to documents where information may be

found pertaining to such items as existing structures or geophysical reports.

1.8 SEQUENCING AND SCHEDULING

This paragraph includes any special sequencing and scheduling required.

1.9 WARRANTY

This paragraph describes special or extended (more than one year) warranty or bond covering the conformance and performance of the work of the section. A thorough understanding of warranties is necessary to develop this paragraph.

1.10 MAINTENANCE

1.10.1 Extra Materials

This paragraph covers items to be furnished to the Government by the Contractor for future maintenance and repair. Items that might be difficult to obtain because of color or pattern match, or spare parts needed to ensure continued operation of critical equipment should be included. Specifications should identify the items, state the quantities required, and indicate to whom, when, and where items are to be delivered.

1.10.2 Maintenance Service

This paragraph covers provisions for maintenance service as applicable to critical systems, equipment, and landscaping.

PART 2 PRODUCTS

2.1 MATERIALS

This paragraph describes the material to be furnished. Materials specified here are generally those that are independently incorporated into the work under PART 3 EXECUTION. The name used for the material must be consistently used throughout the guide specification. This paragraph is usually omitted when the materials can be included with the description of a particular manufactured unit, equipment, component, or accessory.

2.2 MANUFACTURED UNITS

This paragraph provides statements describing a complete manufactured unit, usually a standard catalog item. Statements may include descriptive requirements for the materials, specific fabrication, finishes, and function. Separate paragraphs for each different item should be used when appropriate. The name used for the manufactured unit must be consistent throughout the guide specification.

2.3 EQUIPMENT

This paragraph provides statements describing the function, operation, and other specific requirements of equipment to be installed in the work. Separate paragraphs for each different item should be used when appropriate.

2.4 COMPONENTS

This paragraph provides statements describing the specific components of a system, manufactured unit, or type of equipment to be installed in the work. Separate paragraphs for each different item should be used when appropriate.

2.5 ACCESSORIES

This paragraph provides requirements for subordinate or secondary items which aid and assist primary products specified above or are necessary for preparation or installation of those items. This paragraph should not include basic options available for manufactured units and equipment.

2.6 MIXES

This paragraph provides proportions and procedures for mixing materials. Mixing is the preparation of materials for use and is considered to be part of the manufacturing process even when this work is done onsite. This paragraph is required for products such as asphaltic concrete, portland cement, concrete, mortar, and plaster

2.7 FABRICATION

This paragraph describes items which must be shop manufactured, fabricated, or assembled before they are delivered to the site.

2.7.1 Shop Assembly

Fabrication may include trial or permanent assembly of equipment and components away from the construction site.

2.7.2 Shop and Factory Finishing

Any shop or factory finishing would normally be specified here.

2.7.3 Tolerances

Allowable variations from specified requirements would normally be specified here.

2.8 TESTS, INSPECTIONS, AND VERIFICATIONS

If tests, inspections, or verifications of products are required at the source, i.e., plant, mill, factory, or shop, they should be specified here.

PART 3 EXECUTION

3.1 EXAMINATION

This paragraph specifies the act of physically determining that conditions are acceptable to receive the primary products of the section. Requirements for verifying suitability of conditions for installation can be specified here. Verifying the absence of defects or errors which would cause defective installation or application of products, or cause latent defects in workmanship and function, can be specified here.

3.2 PREPARATION

This paragraph covers actions required to physically prepare the surface, area, or site to incorporate the primary products of the section.

3.2.1 Protection

This paragraph specifies requirements for protecting the surrounding areas and surfaces.

3.2.2 Surface Preparation

This paragraph describes preparatory work required prior to installation, application, or erection of primary products.

3.3 ERECTION

This paragraph covers actions required to accomplish a specified unit of work in the section, and may include requirements necessary for installation of products furnished under other sections. If products are to be installed according to manufacturer's instructions, then the manufacturer's instructions should be a required submittal as evidence of those requirements. Separate paragraphs for each different item, as appropriate, may be used. The names of the products or the type of work may be incorporated into the paragraph titles, in which case the wording should reflect the generic product or terminology used throughout the contract documents.

3.4 INSTALLATION

This paragraph may be used when more appropriate than paragraph ERECTION.

3.5 APPLICATION

This paragraph may be used when more appropriate than paragraph ERECTION.

3.5.1 Special Techniques

This paragraph describes special procedures for incorporating products. These procedures may include spacings, patterns, or unique treatments. The wording of the paragraph title should reflect the subject matter
.

3.5.2 Interface with Other Products

This paragraph provides descriptions specific to compatibility and transition to other materials. This may include incorporating accessories, anchorage, and any special separation or bonding.

3.5.3 Tolerances

This paragraph covers allowable variations in application thickness or from indicated locations.

3.6 FIELD QUALITY CONTROL

3.6.1 Tests

This paragraph defines the tests required for installed or completed work. These tests are different and separate from those required for materials and products prior to installation or application.

3.6.2 Inspection

This paragraph defines the inspections required for installed or completed work. These inspections are different and separate from those required for materials and products prior to installation or application.

3.6.3 Manufacturer Field Service

This paragraph covers specific requirements when manufacturers are to provide field quality control with onsite personnel for instruction or supervision of the installation or application of their products, or for startup or demonstration.

3.7 ADJUSTING AND CLEANING

This paragraph provides final actions to prepare installed equipment or other completed work to properly function or perform.

3.8 DEMONSTRATION

This paragraph covers requirements of the installer or manufacturer to demonstrate the operation and maintenance of equipment to the owner's personnel.

3.9 PROTECTION

This paragraph includes provisions for protecting installed work prior to acceptance of the project. Protection of surrounding areas and surfaces during application or installation is included in paragraph PREPARATION. Only statements unique to the particular section should be included.

3.10 SCHEDULES

This paragraph includes schedules which indicate where to put what or provides other coordinating data. Schedules are sometimes placed here in the specification section rather than on the drawings. (Only the format for a schedule would normally be included in a UFGS.)